

WHAT IS CLAIMED IS:

1. A data transmission system for at least one of remote maintenance and diagnosis of an automation system, which is provided with an electronic firewall, said system comprising:

a first transmit/receive device disposed at a location of a remote user which sends a first e-mail message, via a data transmission system, to the automation system, wherein the first transmit/receive device includes

an instruction encoder which packages at least one instruction in the first e-mail message; and

a second transmit/receive device disposed at a location of the automation system to receive the first e-mail message sent by the remote user, wherein the second transmit/receive device includes

an instruction decoder which automatically identifies the instruction in the first e-mail message, and which transmits the instruction to an application of the automation system for which the instruction is intended.

2. The system as claimed in claim 1, wherein the instruction sent by the first transmit/receive device is at least one of to control, operate and monitor the application of the automation system.

3. The system as claimed in claim 1, wherein the application comprises a component apparatus of the automation system.

4. The system as claimed in claim 1,
wherein the first e-mail message sent from the first transmit/receive
device contains an instruction which is operative to generate result information
in the application, and

5 wherein the second transmit/receive device transmits the result
information in the form of a second e-mail message, in a reverse direction, to
the first transmit/receive device of the remote user.

5. The system as claimed in claim 1, wherein the second
transmit/receive device is configured to receive result information generated
by the application and send the result information in a second e-mail message
to the first transmit/receive device of the remote user.

5 6. The system as claimed in claim 5,
wherein the second transmit/receive device further comprises an
encryption device which encrypts the result information contained in the
second e-mail sent by the second transmit/receive device to the first
transmit/receive device; and

wherein the first transmit/receive device further comprises a decryption
device which decrypts the result information contained in the second e-mail, at
the location of the remote user.

7. The system as claimed in claim 5, wherein the first e-mail and the second e-mail have, respectively, an identification field and a text field.

8. The system as claimed in claim 7,
wherein the identification field includes an address field, a sender field, a date and time field, and a subject field; and

wherein the text field in the first e-mail includes the instruction which
5 is to be transmitted to the application, and the text field in the second e-mail includes the result information sent to the first transmit/receive device.

9. A method for at least one of remote maintenance and diagnosis of an automation system, which is provided with an electronic firewall, the method comprising:

packaging at least one instruction in a first e-mail;
5 sending the first e-mail, by a remote user via a data transmission system;

receiving the first e-mail sent by the remote user at a location of the automation system,

identifying, automatically, by the automation system, the instruction
10 contained in the first e-mail; and

forwarding the instruction to an intended application of the automation system for execution of the instruction.

10. The method as claimed in claim 9, further comprising,
formatting the instruction of the first e-mail to be for at least one of
controlling, monitoring and operating the application of the automation
system.

11. The method as claimed in claim 9, further comprising:
generating result information by the application based on the execution
of the instruction in the first e-mail; and
sending the result information from the second transmit/receive device
5 in the form of a second e-mail to the first transmit/receive device of the remote
user.

12. The method as claimed in claim 11, further comprising:
encrypting the result information sent by the second transmit/receive
device to the first transmit/receive device; and
decrypting at the location of the remote user, the result information
5 received from the second transmit/receive device.

13. A data transmission system for at least one of remote
maintenance and diagnosis of an automation system shielded by an electronic
firewall, said system comprising:

first transmit/receive means disposed at a location of a remote user for
5 sending a first e-mail message to the automation system, wherein the first
transmit/receive means includes

instruction encoder means for packaging at least one instruction
in the first e-mail message to be transmitted; and

second transmit/receive means disposed at a location of the automation
10 system for receiving the first e-mail message sent by the remote user, wherein
the second transmit/receive means includes

instruction decoder means for automatically identifying the
instruction in the first e-mail message, and transmitting the instruction
to an application of the automation system for which the instruction is
15 intended.

14. The system as claimed in claim 13,

further comprising a result generating means for generating result
information in the application, and

wherein said second transmit/receive means is further for transmitting
5 the result information in the form of an e-mail message to the first
transmit/receive means of the remote user.

15. A data transmission system for at least one of remote
maintenance and diagnosis of an automation system that has at least one

application and that is provided within an electronic firewall, said system comprising:

5 a first communication device disposed at a location outside the firewall and communicating with the automation system through at least one of a first e-mail message and a second e-mail message, wherein the first communication device comprises:

10 an instruction processor that at least either (a) packages at least one instruction for the application into the first e-mail message or (b) receives result information generated by the application in the second e-mail message; and

15 a second communication device disposed at a location inside the firewall and relaying at least one of the instruction and the result information between the first communication device and the automation system, wherein the second communication device comprises:

20 an instruction processor that at least either (a) receives the at least one instruction for the application in the first e-mail message and (b) forwards the at least one instruction to the automation system, or (a) packages the result information generated by the application into the second e-mail message and (b) transmits the result information in the second e-mail message.